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EXAMINER	
MARTIN, NICHOLAS A	

ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 05/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/923,221	ZHAO ET AL.	
	Examiner	Art Unit	
	Nicholas Martin	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/5/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1-32 are presented for examination.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments

3. Applicants' arguments filed on 02/24/05 have been fully considered but they are not persuasive.

4. As per remarks, Applicants' argued that (1) Welin does not disclose a memory coupled to a cell processing unit and configured to store one or more policy parameters and rollover data for each of the communication channels, wherein the rollover data comprises an indication of a rollover relationship between the timer value and one of the policy parameters for each of the communication channels.

5. As to point (1), Welin teaches a memory coupled to a cell processing unit and configured to store one or more policy parameters (Paragraphs [0086] "...a computer box including one or more information storage devices...with microprocessor(s), digital signal processor(s), volatile memory..."; [0092] "Each DSP suitably has associated memory...") and rollover data for each of the communication channels, wherein the rollover data comprises an indication of a rollover relationship between the timer value and one of the policing parameters for each of the communication channels (Paragraphs [0015-0016] "...includes computing for each of said received packets

respective deadline intervals and ordering processing...according to perspective deadline intervals...packet control establishing an egress scheduling list structure and operations in the processor circuit that extract packet deadline intervals..."; [0017] "...a single-chip circular time differencing integrated circuit has a storage for values representative of the time of two events. An adder/subtractor coupled to the storage generates an electronic difference (delta) and delivers the difference value into storage...; [0058] "...establishes a temporal relationship between the time of arrival of a packet and the time it has to be decoded and added to the data stream (placed in the buffer)..."; [0154] "...egress buffer reserves for several channels..."; [0518-0520]; [0547-548] "...select a desirable clock rate and corresponding clock cycle period and an estimate of the largest interval of time that needs to be maintained by the stream...provides the required clock range..."; [0550]; [0558] "...circular time the two values can possibly straddle clock modulus time boundary, producing false results, i.e., a form of rollover error.").

6. As per remarks, Applicants' argued that (2) Welin does not disclose that for each received incoming data cell, the cell processing unit is configured to assign an arrival time from the timer value and compare the received incoming data cell's arrival time to one of the one or more policing parameters for the received incoming data cell's communication channel to determine if the received incoming data cell is conforming or non-conforming to a rate for the communication channel.

7. As to point (2), Welin teaches that for each incoming data cell, the cell processing unit is configured to assign an arrival time from the timer value and compare the received incoming data cell's arrival time to one of the one or more policing parameters for the received incoming data cell's communication channel (Paragraphs [0017] "...a single-chip circular time differencing integrated circuit has a storage for values representative of the time of two events. An adder/subtractor coupled to the storage generates an electronic difference (delta) and delivers the difference value into storage..."; [0058] "...establishes a temporal relationship between the time of arrival of a packet and the time it has to be decoded and added to the data stream (placed in the buffer)..."; [0154] "...egress buffer reserves for several channels..."; [0158] "...there is an optimal moment to start the first frame. That moment is related to the arrival time of the first packet..."; [0518-0520]; [0547-548] "...select a desirable clock rate and corresponding clock cycle period and an estimate of the largest interval of time that needs to be maintained by the stream...provides the required clock range..."; [0550]; [0555]) to determine if the received incoming data cell is conforming or non-conforming to a rate for the communication channel (Paragraphs [0231] "...decoded to prevent it from being lost due to late arrival or unnecessarily-delayed handling in the computer."; [0253] "...when the computer receives the packets...some packets may be too late or lost..."; [0264]; [0555-0557]).

8. As per remarks, Applicants' argued that (3) Welin does not teach that the cell processing unit is configured to access rollover data for the received incoming data

cell's communication channel to account for the rollover relationship when comparing the arrival time to one or more policing parameters.

9. As to point (3), Welin teaches that the cell processing unit is configured to access rollover data fro the received incoming data cell's communication channel to account for the rollover relationship when comparing the arrival time to one or more policing parameters (Paragraphs [0017] "...a single-chip circular time differencing integrated circuit has a storage for values representative of the time of two events. An adder/subtractor coupled to the storage generates an electronic difference (delta) and delivers the difference value into storage...; [0058] "...establishes a temporal relationship between the time of arrival of a packet and the time it has to be decoded and added to the data stream (placed in the buffer)..."; [0080] "...link list tells the system which packets to decode first, in order of their deadline number...accesses the cell at to top of the queue...detects what process to use, and for what channel..."; [0140] "...arriving packet, the process accesses addresses...computes the current reserve for that channel"; [0146-0147] "..... access to the deadline time, by which the packet's data is inserted into the egress buffer...the packets in the queue for decoding are sorted with respect to their deadline times. The values of those reserves are accessible for each packet in the queue [0154] "...egress buffer reserves for several channels..."; [0158] "...there is an optimal moment to start the first frame. That moment is related to the arrival time of the first packet..."; [0518-0520]; [0547-548] "...select a desirable clock rate and corresponding clock cycle period and an estimate of the largest interval of time that needs to be maintained by the stream...provides the required clock range...";

[0550]; [0558] "...circular time the two values can possibly straddle clock modulus time boundary, producing false results, i.e., a form of rollover error.").

10. As per remarks, Applicants' argued that (4) Welin and/or Fahmi do not teach or suggest that the rollover data is configured to indicate for each communication channel whether or not the timer value and theoretical arrival time are in the same rollover phase.

11. As to point (4), Fahmi teaches that the rollover data is configured to indicate for each communication channel whether or not the timer value and theoretical arrival time are in the same rollover phase (Col. 1, lines 59-65 "...determining if a theoretical arrival time TAT is less than an arrival time for a cell..."; Col. 2, lines 62-67; Col. 4, lines 1-5, 19-29, 53-58 "...update flag has an input from clock which provides an output at typically about 1 second intervals...rollover period of the time-of-arrival rollover period of the time-of-arrival counter...stored the values of the theoretical arrival time, TAT, and the increment, I. ...Upon completion of processing time for the cell arriving just after rollover, during which the processor suspends processing of the cell arrival time, a reset signal is sent...which resets the latter and removes the flag input). Welin teaches that the values are in the same rollover phase (Paragraphs [0058] "...establishes a temporal relationship between the time of arrival of a packet and the time it has to be decoded and added to the data stream (placed in the buffer)..."; [0130-0134] "...measures of time expressed as the number of clock cycles. Assuming that the clock is the sampling clock, the number of time units in that region are the same."; [0373] "Each packet, as it

arrives, contains 80 samples. A phase lock loop enhances clock recovery to reconstitute clock for resampling at the receiver...").

12. As per remarks, Applicants' argued that (5), Welin and/or Fahmi do not teach or suggest a memory configured to store operations and maintenance data indicating connection availability information for each communication channel.

13. As to point (5), Welin teaches a memory configured to store operations and maintenance data indicating connection availability information for each communication channel (Paragraphs [0256] "...updates the channel records...acting as a source of maintenance..."; [0318] "Maintenance of a queue...from the DMA hardware. The DMA is programmed for the ingress side to continually put data from a line into the buffer or buffers..."; [0259]; [0310]; [0620] "...add memory and a control program...in normal operation or during maintenance...VoIP control and TCP/UDP/IP packet network protocol stack and an ingress/egress control block...").

14. As per remarks, Applicants' argued that (6) Welin and/or Fahmi in further view of "Official Notice" do not teach or suggest a network device wherein a timer rollover phase indicator comprises a global register bit configured to be toggled each time the timer value rolls over.

15. As to point (6), Welin teaches a timer rollover phase indicator comprises a global register bit configured to be toggled each time the timer value rolls over (Paragraph [0194] "...DMA registers are readily looked up...when a packet arrives is determinable

in terms of number of samples until the boundary."; [0329] "...process resets the boundary, schedules the ingress, and updates all of the egress deadlines...checks whether a new egress packet flag is set...leads to execution of the ISR for new packet to create new cell..."; [0417] "...register is accessed by a scheduler for that information stored therein for use in determining how to schedule packets, and whether to preempt...first initialize a register and then transfer and decode...20 bits from a frame...data in an egress packet queue...a break process initiates a call to scheduler. Also a break process updates a register..."; [0418] "...scheduler...takes care of any just-arrived packets...20 more bits, followed by another break process..."; [0419]; [0542]; [0550-0555]).

16. As per remarks, Applicants' argued that (7) Welin and/or Fahmi in further view of "Official Notice" do not teach or suggest any value that indicates that the theoretical arrival time value for a communication channel is ahead, behind or in the same rollover phase as the timer value.

17. As to point (7), Fahmi teaches any value that indicates that the theoretical arrival time value for a communication channel is ahead, behind or in the same rollover phase as the timer value (Col. 4, lines 1-5 "...update flag has an input from clock which provides an output at typically about 1 second intervals...rollover period of the time-of-arrival rollover period of the time-of-arrival counter...", lines 10-29 "...n-bit parallel output passes...in response to the arrival of a cell arrival signal...arrival signal is issued upon completion of arrival of a octets of data. The time of arrival on bus line is applied

to an input of processor giving to processor the time of arrival for each cell. Processor stores this value in RAM memory. Processor also has stored the values of the theoretical arrival time, TAT... Upon completion of processing time for the cell arriving just after rollover, during which the processor suspends processing of the cell arrival time, a reset signal is sent...which resets the latter and removes the flag input", lines 53-58). Welin teaches that the values are in the same rollover phase (Paragraphs [0058] "...establishes a temporal relationship between the time of arrival of a packet and the time it has to be decoded and added to the data stream (placed in the buffer)..."; [0130-0134] "...measures of time expressed as the number of clock cycles. Assuming that the clock is the sampling clock, the number of time units in that region are the same."; [0373] "Each packet, as it arrives, contains 80 samples. A phase lock loop enhances clock recovery to reconstitute clock for resampling at the receiver...").

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

18. Claims 1, 16, 17 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Welin, Andrew M. (hereinafter Welin), US 2002/0031086.

19. As per claim 1, Welin teaches a network device comprising:

a cell processing unite configured to receive incoming data cells from a network for a plurality of communication channels (Paragraphs [0061], [0066] and [0067];

a timer configured to provide a timer value to said cell processing unit (Paragraphs [0250] and [0251]); and

a memory coupled to said cell processing unit and configured to store one or more policy parameters and rollover data for each of the communication channels, wherein the rollover data comprises an indication of a rollover relationship between the timer value and one of the policing parameters for each of the communication channels (Paragraphs [0058], [0086], [0092], [0122], [0154], [0518-0520], [0547-548] and [0550];

wherein for each received incoming data cell, said cell processing unit is configured to assign an arrival from the timer value and compare the received incoming data cell's arrival time to the one or more policing parameters for the received incoming data cell's communication channel to determine if the received incoming data cell is conforming or non-conforming to a rate for the communication channel, wherein said cell processing unit is configured to access the rollover data for the received incoming data cell's communication channel to account for the rollover relationship when

comparing the arrival time to the one or more policing parameters (Paragraphs [0058], [0158], [0231], [0253], [0264], [0518-0520], [0547-548], [0550], [0555] and [0557]).

20. As per claim 16, Welin teaches the network device as recited in claim 1, wherein the network device is configured as an Asynchronous Transfer Mode (ATM) switch for the plurality of communication channels, wherein each communication channel is an ATM virtual channel (Paragraph 0313).

21. As per claim 17, Welin teaches a method comprising:

receiving incoming data cells from a network fro a plurality of communication channels, wherein each received incoming data cell has an arrival time from a timer value (Paragraphs [0061], [0066], [0067], [0250] and [0251]);

for each received incoming data cell, accessing one or more policing parameters and rollover data for the communication channel on which the incoming data cell was received, wherein the rollover data comprises an indication of a rollover relationship between the timer value and one of the policing parameters for each of the communication channels (Paragraphs [0058], [0086], [0092], [0122], [0154], [0518-0520], [0547-548] and [0550];

for each received incoming data cell, comparing the received incoming data cell's arrival time to the one or more policing parameters for the received incoming data cell's communication channel to determine if the received incoming data cell is conforming or non-conforming to a rate for the communication channel, wherein said comparing comprises using the rollover data for the received incoming data cell's communication channel to account for the rollover relationship between the arrival time and the one or

more policing parameters (Paragraphs [0058], [0158], [0231], [0253], [0264], [0518-0520], [0547-548], [0550], [0555] and [0557]).

22. As per claim 32, Welin teaches the method as recited in claim 17, wherein each communication channel is an Asynchronous Transfer Mode (ATM) virtual channel (Paragraph 0313).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

23. Claims 2-4, 6-15 and 18-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welin, Andrew M. (hereinafter Welin), US 2002/0031086, in view of Fahmi et al. (hereinafter Fahmi), US 5,668,797.

24. As per claim 2, Welin does not explicitly teach the network device as recited in claim 1, wherein said timer is configured to increment the timer value at a predetermined frequency, wherein the timer value rolls over to zero and continues incrementing upon reaching a maximum timer value, and wherein the one or more policing parameters comprise a theoretical arrival time, wherein said theoretical arrival time rolls over upon being incremented past a maximum value and wherein the rollover data is configured to indicate for each communication channel whether or not the timer value and theoretical arrival time are in the same rollover phase.

25. Fahmi teaches a network, wherein said timer is configured to increment the timer value at a predetermined frequency, wherein the timer value rolls over to zero and continues incrementing upon reaching a maximum timer value, and wherein the one or more policing parameters comprise a theoretical arrival time, wherein said theoretical arrival time rolls over upon being incremented past a maximum value and wherein the rollover data is configured to indicate for each communication channel whether or not the timer value and theoretical arrival time are in the same rollover phase (Col. 2, lines 62-67; Col. 3, lines 27-32, 62-65; Col. 4, lines 1-5, 19-29, 53-58).

26. It would have been obvious to one of ordinary skill in this art at the time of invention was made to combine the teaching of Fahmi and Welin because they both deal with traffic scheduling of transferring data over a network using timers and counters schedule arrival of media. Furthermore, the teaching of Fahmi to allow wherein said timer is configured to increment the timer value at a predetermined frequency, wherein the timer value rolls over to zero and continues incrementing upon reaching a maximum timer value, and wherein the one or more policing parameters comprise a theoretical arrival time, wherein said theoretical arrival time rolls over upon being incremented past a maximum value and wherein the rollover data is configured to indicate for each communication channel whether or not the timer value and theoretical arrival time are in the same rollover phase would improve the functionality of Welin's system by improving the means of synchronization between data sources for packet transferring.

27. As per claim 3, Welin teaches the network device as recited in claim 2, further comprising:

a timer rollover phase indicator configured to indicate a current rollover phase of the timer value (Paragraph [0528]).

28. Welin does not explicitly teach the network device further comprising:

wherein said cell processing unit is configured to access said memory to perform an update of the rollover data for each communication channel at least once per rollover phase of the timer value.

29. Fahmi teaches a network device further comprising:

wherein said cell processing unit is configured to access said memory to perform an update of the rollover data for each communication channel at least once per rollover phase of the timer value (Col 3, lines 62-67; Col. 4, lines 1-9, 20-29).

30. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Fahmi and Welin because they both deal with a timer/counter to update rollover data for each communication channel during the rollover phase. Furthermore, the teaching of Fahmi to allow wherein said cell processing unit is configured to access said memory to perform an update of the rollover data for each communication channel at least once per rollover phase of the timer value would improve the updating procedure of Welin's system's timer by utilizing memory to perform updates on the timer more frequently to ensure correct rollover data.

31. As per claim 4, Welin does not explicitly teach the network device as recited in claim 3, wherein for each communication channel the rollover data is further configured to indicate the rollover phase of the timer value the last time the rollover data was updated, wherein to perform the update of the rollover data for each communication channel the cell processing unit is configured to:

compare the current rollover phase of the timer value to the rollover phase of the timer the last time the rollover data was updated;

if the current rollover phase of the timer value is different than the rollover phase of the timer the last time the rollover data was updated, the cell processing unit is configured to:

update the rollover data to indicate if the theoretical arrival time is ahead, behind, or in the same rollover phase as the timer value; and

update the rollover data to indicate the current timer value rollover phase as the rollover phase of the timer value the last time the rollover data was updated.

32. Fahmi teaches a network device configured to:

compare the current rollover phase of the timer value to the rollover phase of the timer the last time the rollover data was updated (Col. 4, lines 35-41);

if the current rollover phase of the timer value is different than the rollover phase of the timer the last time the rollover data was updated, the cell processing unit is configured to:

update the rollover data to indicate if the theoretical arrival time is ahead, behind, or in the same rollover phase as the timer value (Col. 3, lines 1-12); and

update the rollover data to indicate the current timer value rollover phase as the rollover phase of the timer value the last time the rollover data was updated (Col. 4, lines 48-53).

33. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Fahmi and Welin because they both deal with updating rollover data for communication channels transmitting information. Furthermore, the teaching of Fahmi to allow compare the current rollover phase of the timer value to the rollover phase of the timer the last time the rollover data was updated; if the current rollover phase of the timer value is different than the rollover phase of the timer the last time the rollover data was updated, the cell processing unit is configured to: update the rollover data to indicate if the theoretical arrival time is ahead, behind, or in the same rollover phase as the timer value; and update the rollover data to indicate the current timer value rollover phase as the rollover phase of the timer value the last time the rollover data was updated would improve the updating procedure for rollover in Welin's system by allowing the rollover data to indicate its current position pertaining to the theoretical timer value and rollover phase in order to begin a new rollover phase pertaining to packet transmission.

34. As per claim 6, Welin teaches the network device as recited in claim 3, wherein said memory is further configured to store operations and maintenance data indicating connection availability information for each communication channel (Paragraphs [0318] and [0620], the network device further comprising:

wherein said cell processing unit is configured to perform a scanning function to scan the operations and maintenance data for the plurality of communication channels at least once per rollover phase of the timer value (Paragraphs [0262], [0606] and [0630]); and

wherein said cell processing unit is configured to access said memory to perform the update of the rollover data for each communication channel as part of said scanning function (Paragraphs [0262] and [0620]).

35. As per claim 7, Welin teaches a network device as recited in claim 6, wherein said cell processing unit is configured to perform said scanning function more frequently than once per roll over phase of the timer value, the network device further comprising:

a timer rollover indicator configured to be set when the timer value rolls over (Paragraph [0528]);

wherein said cell processing unit is configured to check the timer rollover indicator upon initiating the scanning function, wherein if the timer rollover indicator is set, the cell processing unit is configured to perform the update of the rollover data as the operations and maintenance data for each communication channel is scanned, and wherein if the timer rollover indicator is not set, the cell processing unit is configured to perform the scanning function without performing the update of the rollover data (Paragraphs [0262], [0528], [0620], [0630] and [0653]).

wherein the timer rollover indicator is cleared completing a scan in which the update of the rollover data is performed for each communication channel (Paragraphs [0341], [0262], [0417] and [0630].

36. As per claim 8, Welin does not explicitly teach the network device as recited in claim 7, wherein for each communication channel the rollover data is further configured to indicate the rollover phase of the timer value the last time the rollover data was updated, wherein to perform the update of the rollover data for each communication channel the cell processing unit is configured to:

compare the current rollover phase of the timer value to the rollover phase of the timer the last time the rollover data was updated;

if the current rollover phase of the timer value is different that the rollover phase of the timer the last time the rollover data was updated, the cell processing unit is configured to:

update the rollover data to indicate if the theoretical arrival time is ahead, behind, or in the same rollover phase as the timer value; and

update the rollover data to indicate that the rollover phase of the timer value the last time the rollover data was updated is the current timer value rollover phase.

37. Fahmi teaches a network device configured to:

compare the current rollover phase of the timer value to the rollover phase of the timer the last time the rollover data was updated ((Col. 4, lines 35-41);

if the current rollover phase of the timer value is different that the rollover phase of the timer the last time the rollover data was updated, the cell processing unit is configured to:

update the rollover data to indicate if the theoretical arrival time is ahead, behind, or in the same rollover phase as the timer value (Col. 3, lines 1-12); and

update the rollover data to indicate that the rollover phase of the timer value the last time the rollover data was updated is the current timer value rollover phase (Col. 4, lines 48-53).

38. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Fahmi and Welin because they both deal with updating rollover data for communication channels transmitting information. Furthermore, the teaching of Fahmi to allow compare the current rollover phase of the timer value to the rollover phase of the timer the last time the rollover data was updated; if the current rollover phase of the timer value is different than the rollover phase of the timer the last time the rollover data was updated, the cell processing unit is configured to update the rollover data to indicate if the theoretical arrival time is ahead, behind, or in the same rollover phase as the timer value; and update the rollover data to indicate the rollover phase of the timer value the last time the rollover data was updated is the current timer value rollover over phase would improve the updating procedure for rollover data in Welin's system by allowing the rollover data to indicate its current position pertaining to the theoretical timer value and rollover phase in order to begin a new rollover phase pertaining to packet transmission.

39. As per claim 9, Welin teaches the network device of claim 2, further comprising:

a timer rollover phase indicator configured to indicate a current rollover phase of the timer value (Paragraph [0528]);

40. Welin does not explicitly teach the network device of claim 2, further comprising:

wherein for each communication channel the rollover data is further configured to indicate the rollover phase of the timer value the last time the rollover data was updated;

wherein for each received incoming data cell, before comparing the arrival time to the theoretical arrival time for the received incoming data cell's communication channel said cell processing unit is configured to compare the current rollover phase of the timer value to the rollover phase of the timer the last time the rollover data was updated, and if the current rollover phase of the timer value is different than the rollover phase of the timer the last time the rollover data was updated, update the rollover data in said memory for the received incoming data cell's communication channel.

41. Fahmi teaches network device comprising:

wherein for each communication channel the rollover data is further configured to indicate the rollover phase of the timer value the last time the rollover data was updated (Col. 4, lines 45-51);

wherein for each received incoming data cell, before comparing the arrival time to the theoretical arrival time for the received incoming data cell's communication channel said cell processing unit is configured to compare the current rollover phase of the timer value to the rollover phase of the timer the last time the rollover data was updated, and if

the current rollover phase of the timer value is different than the rollover phase of the timer the last time the rollover data was updated, update the rollover data in said memory for the received incoming data cell's communication channel (Col. 10-23).

42. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Fahmi and Welin because they both deal with indicating the timer/counter rollover data pertaining to the current rollover phase. Furthermore, the teaching of Fahmi to allow wherein for each communication channel the rollover data is further configured to indicate the rollover phase of the timer value the last time the rollover data was updated wherein for each received incoming data cell, before comparing the arrival time to the theoretical arrival time for the received incoming data cell's communication channel said cell processing unit is configured to compare the current rollover phase of the timer value to the rollover phase of the timer the last time the rollover data was updated, and if the current rollover phase of the timer value is different than the rollover phase of the timer the last time the rollover data was updated, update the rollover data in said memory for the received incoming data cell's communication channel would improve the functionality of updating the rollover data of Welin's system through analysis of previous rollover data in the memory in order to speed up the rollover process.

43. As per claim 10, Welin does not explicitly teach the network device as recited in claim 9, wherein said cell processing unit is further configured to perform an update function at least once per rollover phase of the timer value, wherein the rollover data for

each communication channel is updated by the update function if the current rollover phase of the timer value is different than the rollover phase of the timer the last time the rollover data was updated.

44. Fahmi teaches a network device, wherein said cell processing unit is further configured to perform an update function at least once per rollover phase of the timer value, wherein the rollover data for each communication channel is updated by the update function if the current rollover phase of the timer value is different than the rollover phase of the timer the last time the rollover data was updated (Col. 4, lines 1-9).

45. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Fahmi and Welin because they both deal with updating the timer/counter rollover data for communication of information. Furthermore, the teach of Fahmi to allow wherein said cell processing unit is further configured to perform an update function at least once per rollover phase of the timer value, wherein the rollover data for each communication channel is updated by the update function if the current rollover phase of the timer value is different than the rollover phase of the timer the last time the rollover data was updated would improve functionality and reliability of updating the rollover data of Welin's system by allowing the rollover data to update more often and on at least once per rollover phase.

46. As per claim 11, Welin does not explicitly teach the network device as recited in claim 10, wherein for each communication channel, the rollover data comprises:

a bit R, wherein R is set to indicate that the theoretical arrival time value for the communication channel is ahead of the timer value in rollover phase;

a bit B, wherein B is set to indicate that the theoretical arrival time value for the communication channel is behind the timer value in rollover phase, wherein R and B are both cleared to indicate that the theoretical arrival time value for the communication channel and the timer value are in the same rollover phase; and

a bit V, wherein V indicates the rollover phase of the timer value the last time the rollover data was updated.

47. Fahmi teaches a network device wherein the rollover data comprises:

a bit R, wherein R is set to indicate that the theoretical arrival time value for the communication channel is ahead of the timer value in rollover phase (Col. 2, lines 62-67; Col. 3, lines 1-4; Col. 4, lines 30-41);

a bit B, wherein B is set to indicate that the theoretical arrival time value for the communication channel is behind the timer value in rollover phase, wherein R and B are both cleared to indicate that the theoretical arrival time value for the communication channel and the timer value are in the same rollover phase (Col. 3, lines 11-16; Col. 4, lines 30-41, lines 61-64); and

a bit V, wherein V indicates the rollover phase of the timer value the last time the rollover data was updated (Col. 4, lines 30-41, lines 48-53).

48. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Fahmi and Welin because they both deal with updating the rollover data according to rollover bit assignments. Furthermore,

the teaching of Fahmi to allow a bit R, wherein R is set to indicate that the theoretical arrival time value for the communication channel is ahead of the timer value in rollover phase; a bit B, wherein B is set to indicate that the theoretical arrival time value for the communication channel is behind the timer value in rollover phase, wherein R and B are both cleared to indicate that the theoretical arrival time value for the communication channel and the timer value are in the same rollover phase; and a bit V, wherein V indicates the rollover phase of the timer value the last time the rollover data was updated would improve functionality and speed of Welin's system by allowing the rollover data to allocate specific assignment bits to indicate which phase the rollover process is in so that it may proceed.

49. As per claim 12, Welin does not explicitly teach the network device as recited in claim 11, wherein the one or more policing parameters further comprise a limit value, wherein for each received incoming data cell, the cell processing unit is configured to compare the received incoming data cell's arrival time to the one or more policing parameters by accessing the rollover data and policing parameters for the received incoming data cell's communication channel, wherein the received incoming data cell is conforming if:

R is set and the cell's arrival time is greater than or equal to the theoretical arrival time minus the limit value, taking into account that the theoretical arrival time is ahead of the cell's arrival time in rollover phase; or

R is not set and B is set; or

R and B are both not set and the cell's arrival time is greater than or equal to the theoretical arrival time minus the limit value.

50. Fahmi teaches a network device wherein the incoming data is conforming if:

R is set and the cell's arrival time is greater than or equal to the theoretical arrival time minus the limit value, taking into account that the theoretical arrival time is ahead of the cell's arrival time in rollover phase (Col. 3, lines 1-16; Col. 4, lines 12-18); or

R is not set and B is set (Col. 1-4; Col. 4, lines 12-18); or

R and B are both not set and the cell's arrival time is greater than or equal to the theoretical arrival time minus the limit value (Col. 5-16, Col. 4, lines 12-18, lines 30-38).

51. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Fahmi and Welin because they both deal with incoming data cell's arrival time and their parameters according to the theoretical arrival time. Furthermore, the teaching of Fahmi to allow R is set and the cell's arrival time is greater than or equal to the theoretical arrival time minus the limit value, taking into account that the theoretical arrival time is ahead of the cell's arrival time in rollover phase; or R is not set and B is set; or R and B are both not set and the cell's arrival time is greater than or equal to the theoretical arrival time minus the limit value would improve the speed and functionality of Welin's system by allowing analysis of the incoming data's arrival time.

52. As per claim 13, Welin does not explicitly teach the network device as recited in claim 12, wherein the received incoming data cell is non-conforming if:

R is set and the cell's arrival time is less than the theoretical arrival time minus the limit value, taking into account that the theoretical arrival time is ahead of the cell's arrival time in rollover phase; or

R and B are both not set and the cell's arrival time is less than the theoretical arrival time minus the limit value.

53. Fahmi teaches a network device that is non-conforming if:

R is set and the cell's arrival time is less than the theoretical arrival time minus the limit value, taking into account that the theoretical arrival time is ahead of the cell's arrival time in rollover phase (Col. 3, lines 1-16; Col. 4, lines 12-18); or

R and B are both not set and the cell's arrival time is less than the theoretical arrival time minus the limit value (Col. 5-16, Col. 4, lines 12-18, lines 30-38).

54. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Fahmi and Welin because they both deal with incoming data cell analysis. Furthermore, the teaching of Fahmi to allow R is set and the cell's arrival time is less than the theoretical arrival time minus the limit value, taking into account that the theoretical arrival time is ahead of the cell's arrival time in rollover phase; or R and B are both not set and the cell's arrival time is less than the theoretical arrival time minus the limit value would improve speed and functionality of Welin's system to recognize incoming data cells that are non-conforming through simple calculations.

55. As per claim 14, Welin does not explicitly teach the network device as recited in claim 13, wherein the one or more policing parameters further comprise an increment value, wherein for each received incoming data cell, said cell processing unit is configured to increment the theoretical arrival time for the received incoming data cell's communication channel after determining that the cell is conforming, wherein if the cell is conforming the theoretical arrival time is set to:

the current theoretical arrival time plus the increment value if R is set or if R is not set and the cell's arrival time is less than the current theoretical arrival time; or

the cell's arrival time plus the increment value if R is not set and the cell's arrival time is greater than or equal to the current theoretical arrival time.

56. Fahmi teaches a network device wherein:

the current theoretical arrival time plus the increment value if R is set or if R is not set and the cell's arrival time is less than the current theoretical arrival time (Col. 3, lines 1-16; Col. 4, lines 12-18); or

the cell's arrival time plus the increment value if R is not set and the cell's arrival time is greater than or equal to the current theoretical arrival time (Col. 4, lines 53-58).

57. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Fahmi and Welin because they both deal with incrementing the theoretical arrival time when the transmitted cell is conforming. Furthermore, the teaching of Fahmi to allow the current theoretical arrival

time plus the increment value if R is set or if R is not set and the cell's arrival time is less than the current theoretical arrival time; or the cell's arrival time plus the increment value if R is not set and the cell's arrival time is greater than or equal to the current theoretical arrival time would improve functionality of Welin's system by incrementing and altering the theoretical arrival time value to adjust to the incoming data as it is received.

58. As per claim 15, Welin does not explicitly teach the network device as recited in claim 14, wherein said cell processing unit is further configured to update the rollover data if the theoretical arrival time for one of the communication channels is incremented past its maximum value so that it rolls over, wherein B is cleared if B was set when the theoretical arrival time rolled over, and R is set if B was not set when the theoretical arrival time rolled over.

59. Fahmi teaches a network device, wherein said cell processing unit is further configured to update the rollover data if the theoretical arrival time for one of the communication channels is incremented past its maximum value so that it rolls over, wherein B is cleared if B was set when the theoretical arrival time rolled over, and R is set if B was not set when the theoretical arrival time rolled over (Col. 4, lines 5-9, lines 24-29, lines 59-64).

60. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Fahmi and Welin because they both deal with rolling over the theoretical arrival time. Furthermore, the teaching of Fahmi to allow wherein said cell processing unit is further configured to update the rollover data if

the theoretical arrival time for one of the communication channels is incremented past its maximum value so that it rolls over, wherein B is cleared if B was set when the theoretical arrival time rolled over, and R is set if B was not set when the theoretical arrival time rolled over would improve functionality of Welin's system when preparing for new incoming data by resetting the theoretical time accordingly.

61. Claim 18 does not teach or define any new limitations above claim 2 and therefore are rejected for similar reasons.

62. Claim 19 does not teach or define any new limitations above claim 3 and therefore are rejected for similar reasons.

63. Claim 20 does not teach or define any new limitations above claim 4 and therefore are rejected for similar reasons.

64. Claim 21 does not teach or define any new limitations above claim 11 and therefore are rejected for similar reasons.

65. As per claim 22, Welin teaches a method as recited in claim 19, further comprising:

storing operations and maintenance data for each communication channel, wherein the operations and maintenance data indicates connection availability information, wherein said performance parameters, said rollover data and said operations and maintenance data are all stored in a table having an entry for each communication channel (Paragraphs [0256], [0275], [0318] and [0620];

performing a scanning function to scan the operations and maintenance data in the table for the plurality of communication channels at least once per rollover phase of the timer value (Paragraphs [0262], [0606] and [0630]); and

wherein said updating the rollover data is performed as part of said scanning function (Paragraph [0262]).

66. Claim 23 does not teach or define any new limitations above claim 7 and therefore are rejected for similar reasons.

67. Claim 24 does not teach or define any new limitations above claim 8 and therefore are rejected for similar reasons.

68. Claim 25 does not teach or define any new limitations above claim 9 and therefore are rejected for similar reasons.

69. Claim 26 does not teach or define any new limitations above claims 4 and 10 and therefore are rejected for similar reasons.

70. Claim 27 does not teach or define any new limitations above claim 11 and therefore are rejected for similar reasons.

71. Claim 28 does not teach or define any new limitations above claim 12 and therefore are rejected for similar reasons.

72. Claim 29 does not teach or define any new limitations above claim 13 and therefore are rejected for similar reasons.

73. Claim 30 does not teach or define any new limitations above claim 14 and therefore are rejected for similar reasons.

74. Claim 31 does not teach or define any new limitations above claim 15 and therefore are rejected for similar reasons.

75. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Welin and Fahmi in further view of 'Official Notice'.

76. As per claim 5, Welin teaches the network device as recited in claim 4, wherein the timer rollover phase indicator comprises a global register bit configured to be toggled each time the timer value rolls over (Paragraph [0417]).

77. Fahmi teaches a network device comprising:

n-bits encoded to indicate that the theoretical arrival time value for the communication channel is ahead, behind or in the same rollover phase as the timer value (Col. 4, lines 12-18); and

another bit configured to indicate the rollover phase of the timer value the last time the rollover data was updated (Col. 4, lines 45-51).

78. Welin and Fahmi do not teach the network device wherein for each communication channel, the rollover data comprises two bits encoded to indicate that the theoretical arrival time value for the communication channel is ahead, behind or in the same rollover phase as the timer value; and a third bit configured to indicate the rollover phase of the timer value the last time the rollover data was updated. However 'Official Notice' is taken by the Examiner that the process of toggling register bits is well known. It would be obvious to arbitrarily set the number of bits encoded to two in order to indicate that the theoretical arrival time value for the communication channel is

ahead, behind or in the same rollover phase as the timer value; and an additional bit configured to indicate the rollover phase of the timer value the last time the rollover data was updated. This rollover data bit configuration would improve functionality of accessing the rollover data by utilizing less space in the memory each rollover update.

Response to Amendment

79. Examiner withdraws objections to the drawings, which appear to be in conformance with MPEP § 608.02(d).

80. Examiner acknowledges amendments to the specification, which now appears to be in conformance with MPEP § 608.01(g). Objection has been withdrawn.

81. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas Martin whose telephone number is (571) 272-3970. The examiner can normally be reached on Monday - Friday 8:30 a.m. - 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A. Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-3970.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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May 20, 2005

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